



SPIRIT User Group

ACM Project

Business Requirements Document (BRD)

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This document has been approved as the official Business Requirements Document for the ACM Project, and accurately reflects the current understanding of business requirements. Following approval of this document, requirement changes will be governed by the project's change management process, including impact analysis, appropriate reviews and approvals.

DOCUMENT APPROVALS			
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1. Purpose

This document, the Business Requirements Document (BRD), outlines the requirements for development of a new robust data synchronization tool to support SPIRIT operations in the offline mode in accordance with the various State Agency environments. The BRD defines the high level requirements of the SPIRIT User Group State Agencies for this project. The purpose of the BRD is to describe the business requirements for this project so State Agencies will be able to verify their business requirements have been documented completely and accurately, without defining a specific technical solution.

The BRD is a requirements document that will be useful in designing a solution addressing these business requirements. State Agencies will reference this BRD to evaluate if the technical solution design meets the State Agencies' business requirements. The BRD will be a reference for developing test plans, test scripts, and test scenarios to verify State Agencies' business requirements are met.

The BRD defines the scope of the project. The primary project deliverable will be referred to as the Alternate Communications Mode (ACM) in this document. The ACM will support offline operation of the SPIRIT clinic module. The SPIRIT User Group (SUG) believes the SPIRIT client and server programs should be insulated to the maximum amount possible from the requirements of this document. In other words, the SPIRIT software should be designed and maintained for the express purpose of supporting WIC business without being concerned with maintaining operational environments. By doing this, the SUG believes that the SPIRIT application can be made smaller and more robust.

Upon delivery of the ACM, State Agencies will reference the BRD to evaluate if the ACM successfully met the business requirements. Specific requirements will be defined during JAD sessions.

The BRD will be used as the basis for the following activities:

- Creating solution designs
- Evaluating solution designs
- Developing test plans, test scripts, and test scenarios
- Accepting the deliverables
- Determining project completion
- Assessing project success

2. Requirements & Expectations

The software vendor is expected to adhere to the requirements laid out in this document and to provide a fully functional software product that is consistent with the business rules and goals outlined herein, as well as specific requirements and expectations as set forth below.

- The ACM project will be handled as a separate project.
- A wholly separate development team will perform the work for all ACM project deliverables. This team shall consist of different personnel than those currently working on software fixes or enhancements of the SPIRIT software.
- The vendor shall provide the SPIRIT Users Group Product Management Office the number of staff positions required for this project as well as the qualifications of each member of the ACM project team. This includes subcontractors and consultants that work on the ACM project.
- The ACM project will build the ACM module to minimize impact to the source code. The ACM project will make use of any applicable commercial off the shelf (COTS) software to minimize development cost and time.
- The vendor shall supply proper Quality Assurance documentation in a common format (i.e., excel, MS Word, .pdf), outlining the depth of the QA process and the results of the QA process to the SPIRIT Users Group Product Management Office prior to any release of software to the SPIRIT Users Group.

3. Document Resources

Name	Business Unit	Role
SPIRIT User Group	2010 Annual SUG Meeting, Montana	Initial Brainstorming Session
Data Sync Redesign Task Force	SPIRIT User Group	Draft BRD

4. Glossary of Terms

Term/Acronym	Definition
ACM – Alternate Communications Mode	A collection of computer programs to maintain data reconciliation between the local and the Central SPIRIT Server databases.
ACM Device	Where the ACM resides
“On Demand” Synchronization	User initiated reconciliation of predefined sets of data between the local and Central SPIRIT Server databases.
Automated Synchronization	Scheduled or triggered reconciliation of predefined sets of data between the local and Central SPIRIT Server databases
BRD	Business Requirements Document
Central database	State-wide SPIRIT master database
Central SPIRIT Server	Designated web server for the state agency
Check in and Check out	The process enabled by current system functionality of copying participant records from the central database and, after making changes to the records at alternate locations, uploading the changes back to the central database.
Data Maintenance	Database changes in the alternate environment must be efficiently incorporated into the central database upon reconnection and synchronization. Likewise changes in the central database are incorporated into the local database during synchronization.

Term/Acronym	Definition
Offline Mode	Refers to the mode that the ACM enters when not connected to the state's Central SPIRIT Server
Offline	Not connected to the state's Central SPIRIT Server
Online	Connected to the state's Central SPIRIT Server
Database Version Maintenance	The server upgrades the database schema when the server software is updated, and the client connects.
EBT	Electronic Benefits Transfer. There are two versions of EBT currently in use within the US: Magnetic Strip EBT and Smart Card (Pin and Chip) EBT.
Food Instrument (FI)	The paper document or EBT card that is provided to certified WIC participants for use at a grocer or pharmacy to purchase food.
Local database	A user-defined subset of the central database residing on the ACM device
Local SPIRIT Server	Machine where SPIRIT web server and local database are stored; can be used as a LAN server to connect to other machines
Magnetic Stripe EBT	A system where only the personal account number (PAN) is stored on the card via magnetic media. Once the card is swiped at a Point of Sale (POS) terminal, the POS connects via the internet to the EBT processor to determine the WIC allowed food items and balance.
Participant	Pregnant, postpartum, and breast-feeding women, infants, and children up to five years of age who are certified to receive benefits from the WIC Program, including food benefits, referrals, nutrition education, and appointment support.
Remote location	Any location without access to the Central SPIRIT Server
SAM	USDA State Agency Model WIC Information System, of which the SPIRIT System is one in support of the SPIRIT User Group State Agencies' WIC program activities.
Server Role	A computer is fulfilling the server role when it is offering services needed to run the SPIRIT application. This normally means offering a database service and a web service configured to support the SPIRIT application.
Smart Card EBT	Also known as Chip and PIN, the participant data, food prescriptions and other WIC data are stored on the card along with the current balances.
Software Version Maintenance	The server upgrades the SPIRIT client software when it detects that the client version is an older version.

Term/Acronym	Definition
SPIRIT "Alternate" operation/mode	The SPIRIT system is functioning offline (in Alternate mode) when it connects to a local database instead of the central database.
SPIRIT "Normal" operation/mode	The SPIRIT system is functioning online (normally) when it is able to connect to the designated central Web Service for the SUG Member. The Detailed Functional Design Document (DFDD) specifies the behaviour of the SPIRIT system when functioning in the online (Normal) mode.
SPIRIT client modules	The applications that reside on the individual client workstation (i.e., Clinic, Vendor, State Office, etc.)
SPIRIT System, System	The SPIRIT Information System and Source Code; Successful Partners in Reaching Innovative Technology (SPIRIT) system is a SAM system, transferred and implemented by the State Agencies to support the WIC program activities of its member partners.
State Agency	Organizational entity supported by the USDA WIC program and SAM system
SUG	SPIRIT User Group
USDA	United States Department of Agriculture
User Group	Users of the SPIRIT application that belong to the SPIRIT User Group
Vendor	Retail outlets such as grocery stores or pharmacies authorized by the WIC program to sell WIC foods to program participants and redeem WIC food benefits.
WIC	Supplemental Nutrition Program for Women, Infants, and Children
Workstation Role	A computer is fulfilling the workstation role when it is running the SPIRIT client software and performing the functions normally associated with the SPIRIT client. A computer may be performing multiple roles.
Activity Report	Is an electronic presentation (to the user) of changed records on the ACM since synchronization occurred; may be viewed, printed or saved to an external drive; provides the user a means to verify all changed records on the ACM were uploaded successfully to the Central SPIRIT Server during synchronization; might aid in retrieving all changed records from the ACM if the ACM was damaged and unable to synchronize with the Central SPIRIT Server; might aid in restoring changed records to a new ACM in the event the originating ACM was damaged or stolen while operating in the alternate environment

Term/Acronym	Definition
Skeletal data	The set of data that a user would choose, from the ACM menu, to include records from clinics outside of the clinics visited ("other clinics"). This set of data gives states the ability to transfer a client from one clinic to another, and provide the client benefits when using the ACM. The needs in the remote clinic (when using the ACM) would determine which data "fields" or which part of the database for these "other clinics" would be necessary. A state would want all clients from the "other Clinic" but not necessarily all their scanned documents and data.

5. Stakeholders

	Stakeholders
1.	United States Department of Agriculture (USDA), Food and Nutrition Services (FNS) Women Infants Children (WIC), National and Regional Offices
2.	SPIRIT User Group (SUG)
3.	SPIRIT User Group (SUG) State Agencies
4	WIC Clinic Staff
5	WIC Participants
6	Technical Support Staff
7	Source Code Developer
8	Implementation Contractors

6. Project Overview and Background

The USDA Food and Nutrition Service (FNS) administers the Special Supplemental Nutrition Program for Women, Infants, and Children, better known as WIC, whose purpose is to safeguard the health of low-income women, infants, and children up to age five who are at nutritional risk by providing nutritious supplemental foods, nutrition education, and referrals to health care. WIC is funded by a Federal grant program and is available in all 50 States, 33 Indian Tribal Organizations, American Samoa, District of Columbia, Guam, Puerto Rico, and the Virgin Islands which make up 90 WIC State agencies.

Successful Partners in Reaching Innovative Technology (SPIRIT) is a State Agency Model (SAM) that was launched to develop a WIC Information System that would easily transfer to other WIC State Agencies in order to eliminate duplication and streamline the procurement process, thus minimizing the effects of changes (time, effort, cost).

SPIRIT supports State and local agencies WIC operations in the following areas

- Client eligibility and clients records
- Benefit issuance and reconciliation

- Vendor management
- Financial and federal reporting
- WIC Program management and reporting

The SPIRIT User Group works together to maintain the integrity of the System, enhance the System as appropriate, and to manage change to the System. The User Group does this work for the good of all State Agencies and ultimately for the good of all WIC program recipients.

SPIRIT is an online, real time, Web-based system, developed using Microsoft Smart Client technology. Refer to Appendix 14.1 SPIRIT Operations Manual for full descriptions of the system.

Data Sync: Current Offline Tool

In some geographic WIC clinic locations, there is no connectivity to the Central SPIRIT Server. Currently the User Group has an offline tool called Data Sync to distribute WIC benefits to participants in locations that do not have Internet access. The clinic database is downloaded to a laptop computer and taken to the remote clinic to provide participant benefits. Then the laptop is brought back to an online Internet or Intranet location, the clinic data is uploaded to the Central SPIRIT Servers.

The current implementation of SPIRIT offers an alternative operational mode where the client portion communicates directly with a local database server (instead of the Central SPIRIT Server) and bypasses the web services. This operational mode is called offline operation. In addition, the database that is accessed in offline mode is a partial copy of the production database housed in the central server site of the SUG member organization. The process of maintaining both of the databases is called data synchronization.

Data Sync has the following issues:

- 1) The SPIRIT program behaves differently when running in data sync offline mode. There have been several reported defects that only occur when running in offline mode. These defects are critical because help desk support and issue resolution are severely impaired at an offline location.
- 2) Data Sync requires intervention by technical personal at a distant location to maintain tool usability. Repairing issues requires intervention by technical personnel.
- 3) Synchronization problems have caused users to question data integrity and resulted in many user hours validating the data.
- 4) There is insufficient validation of user input which allows the user to initiate Data Sync operations under inappropriate conditions. This can result in serious data integrity issues.
- 5) Data Sync may require large amounts of time to download and upload data. This increases the potential for communications disruption during the synchronization process. In addition, data synchronization cannot handle large changes in data. Changes of this magnitude occur when the data sync laptop is not checked out for several weeks, and when states perform data conversion on startup.
- 6) Data Sync does not automatically recover from communications disruptions.
- 7) Data Sync does not manage software or database schema updates
- 8) Because Data Sync communicates directly with the database, login information must be stored in each client machine. This raises security concerns due to lack of login encryption and the number of places login information is stored.
- 9) Data Sync is built on circa 2004 technology.

Because of these issues, the User Group determined that a total redesign is necessary to develop a data synchronization tool to meet the SPIRIT User Group needs defined in this document.

7. Operational Environment

The SPIRIT system was designed as a client/server program. The client portion of SPIRIT communicates with a web service as the server part of the system. The web service utilizes a database server to store SPIRIT data.

7.1 ACM operational environment

The ACM product is responsible for maintaining an environment that is compatible with the SPIRIT software. The ACM product must function in this same environment.

7.2 Maintenance activities with operational environments

There are three distinct maintenance activities within the operational environments.

Software version maintenance – In all modes, the server software version must match with the client software version. The client version is controlled by the server. The server upgrades the client when it is detected that the client version is an older version. The synchronization process needs to upgrade the Local SPIRIT Server if the Central SPIRIT Server has newer software than the Local SPIRIT Server.

Database schema maintenance – The database schema version must be compatible with the client/server software version. The server upgrades the database schema when the server software is updated and the client connects. For alternate environments, the database schema should be updated at the beginning of the synchronization process prior to transferring data since database synchronization occurs prior to alternate environment operations.

Data maintenance – Database changes in the alternate environment must be efficiently incorporated into the central database upon reconnection and synchronization.

Maintenance Activities

1.	Software Versioning
2.	Database Schema Changes
3.	Data Integrity

8. Business Goals/Objectives to be achieved

The major goals/objectives to be achieved with ACM are as follows.

- To allow WIC business to be conducted in normal mode as well as in alternate mode in various geographic locations.
- To set up an environment for the SPIRIT application to run without connectivity to the Central SPIRIT Server.
 - To hold clinics in locations without broadband internet access
 - To hold mobile clinics (includes boats and on-road vehicles)
 - To operate fixed-site clinics with unreliable internet connection (slow and/or subject to unscheduled outages)

- To operate fixed-site clinics during scheduled internet outages
- To serve as a continuity of operations method for operating a clinic in a temporary location.
- To allow end users to operate the ACM device without intervention by technical staff
- To allow State Agencies to establish controls and parameters for data synchronization
- To allow States to configure arbitrary devices such as laptops as a Local SPIRIT server to support ACM operations.
- To provide a reliable backup mechanism for servicing WIC participants in the event of a loss of connectivity to the Central SPIRIT server. (Continuity of operations)
- To ensure that SPIRIT works the same in alternate mode as it works in normal mode.
- To provide a customer friendly interface for synchronizing data as efficiently as possible
- To provide reliable synchronization with file traceability and data tracking logs
- To provide automated synchronization or on-demand synchronization of the local database when working in the normal environment
- To use the same SPIRIT programs in the alternative mode of operation as in the normal mode of operation. It will be completely seamless to the users which database is connecting.
- To provide an ACM product that is robust, difficult to break and not error prone.
- To easily accommodate SPIRIT database schema changes.

9. Project Dependencies

The ACM must allow users the functionality of the normal SPIRIT system when in the alternate mode environment.

Development of enhancements to the SPIRIT system continues. The SPIRIT application is ever changing. In addition, several new EBT projects are planned in the next two years and these new capabilities will impact SPIRIT. The ACM must be compatible with both EBT technologies (magnetic stripe and smart card).

ACM must also allow for the growth of the SPIRIT suite and be able to accommodate future SPIRIT modules.

10. Key Assumptions

This section describes major assumptions that were made prior to or during the Business Requirements gathering and documentation.

- Technology is available that will support the business requirements.
- Synchronizing data on the local SPIRIT server with the Central SPIRIT Server could be automated and scheduled.
- On demand synchronization can be accomplished quickly and efficiently.
- SPIRIT users will be able to validate the number of records modified and added in alternate mode are the same as the number of records synchronized when returning to the normal mode of operation. Validation is also necessary for food instruments, check numbers, check amounts as well as the aggregate amounts. It is assumed the user will be able to print the validation results if needed
- Users could choose full functionality of the SPIRIT clinic module when operating in the alternate mode environment.
- An ACM device can fulfill multiple roles. When fulfilling the workstation role, it is running the SPIRIT client modules and performing the functions normally associated with the SPIRIT

client. When fulfilling the Local SPIRIT Server role, it is offering services needed to support the SPIRIT client modules for one or more workstations.

- Industry standards and best practices will be utilized for efficiency in data synchronization.

11. Key Constraints

The requirements were based on the following constraints.

- End users generally will not have a high level of technical expertise.
- Each state agency has a unique operating environment including hardware and software.

12. Business Requirements

The business requirements outline the scope of the ACM Project. The business requirements have been organized into three groups.

Set Up	Preparing the ACM for operations in the alternate environment.	<p>Examples:</p> <p>Identifying data elements that will be available to users in the alternate environment</p> <p>Identifying the list of clinics available for operations in the alternate mode</p> <p>Set up ACM in accordance with State policy directives</p> <p>Set up ACM order of promotion when it is to assume the server role for continuity of operations</p>
Normal Mode	ACM activities while connected to the Central SPIRIT Server	<p>Examples:</p> <p>Automated synchronization and/or on-demand synchronization of the local database and central database</p>
Alternate Mode	ACM activities when not connected to the Central SPIRIT Server	<p>Examples:</p> <p>ACM device filling the local server role</p> <p>Operating in the workstation role when connected to an ACM device filling the local server role</p>

User requirements, functional requirements and data integrity requirements are identified for each group.

12.1 Overarching requirement

The SPIRIT clinic module shall behave identically in the normal mode and alternate mode unless the difference is specified in this document. Synchronization shall occur in a timely manner and maintain the integrity of all synchronized elements. The operations of the ACM must be compatible with the SPIRIT applications. Once ACM is set up, operations must be sustainable by personnel who do not have a

technical background. The ACM will be a modular product that provides both on demand synchronization and automated synchronization of data.

12.2 Documentation

The contractor will document all ACM processes and provide the processes to users using the most effective means of communication. For example, documentation may be provided electronically, as online references, electronic graphics/demonstrations, as physical documentation, or using a combination of communication methods not included in the examples. The contractor will be responsible to update the documentation to reflect all changes to the ACM. Documentation will be updated and released concurrent with ACM updates.

Documentation will include but is not limited to the following.

- For each error message generated by the ACM process, there will be definitions and instructions for correcting common malfunctions and restoring performance
- Documentation must be presented so that non-technical staff can understand the errors, follow the steps, and correct most common problems.
- Step by step instructions for installation, setup and configuration.
- Technical design of the ACM product
- Maintenance instructions for the ACM product
- Hardware and software requirements
- Contractor test plans, scripts, and results used in validation
- Instructions to mitigate risks to data integrity
- Updates/upgrades to the ACM should be fully documented in a language and style that can be understood by non-technical staff.

Users will be able to generate electronic documents and print if desired:

- Synchronization activity results, error messages and logs generated by the ACM product
- Audit and change logs

Users will be able to print all SPIRIT reports normally available to the end user for a specific clinic.

12.3 Set-up

The set-up involves preparing the ACM for alternate environment operations. ACM set-up, installation and configuration will be automated so that user error is eliminated. The ACM user interface will be user friendly. ACM security shall utilize security authentication within SPIRIT; privileges are delineated from the roles and responsibilities defined in SPIRIT.

The State Agency will establish minimum and maximum parameters for the data that will be accessed in the alternate mode. The ACM process will allow the State Agency to select from options defined in the initial implementation of the ACM, and will restrict data transferred based on these selections. Options should include the following.

- Scanned documents. Clinic users in the alternate environment must know if required scanned documentation resides on the central database even if those scanned documents were excluded

during the download of the predefined set of data that was synchronized. Documents scanned while in alternate mode must be transferred back to the Central SPIRIT Server regardless of download settings.

- Certification history
- Food package history
- Check history
- Clinic(s) and/or Local Agency(ies) and/or Grantees. For each set of clinic records, each state will have the option to define the data that will be synchronized and available in the alternate environment.
- Active records within a geographic region

During set-up of the ACM, the State Agencies will specify the clinics available for alternate mode operations. In normal mode, clinic staff will choose from this list of clinics when performing on-demand or automated data synchronization. Additionally, clinic staff could choose more than one clinic per ACM device.

12.4 Normal mode

<u>ACM activities while connected to the Central SPIRIT Server</u>
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The ACM device shall support automated synchronization based on the state-chosen configuration parameters. Automated synchronization of records must be reliable with no user intervention. The ACM Project Contractor must work with the SPIRIT Enhancement Contractor to ensure that transition between normal mode and alternate mode is transparent to the SPIRIT user.

The ACM shall support on-demand synchronization based on the state-chosen configuration parameters. On-demand synchronization will be initialized using a user-friendly interface, and will not require technical expertise. On-demand synchronization time should be optimized and efficient. The speed of on-demand synchronization is a high priority for this project.

A user friendly interface will allow clinic staff to select clinics for synchronization activities, print reports, review error logs, trouble shoot ACM malfunctions and prepare for alternate mode operations.

When initiating on-demand synchronization, the user will have the option to lock down the clinic(s) records so that changes can only be made to the local database and not to the central database. When using automated synchronization, users would be expected to initiate on-demand synchronization to lock down the clinic(s) before entering alternate mode.

Dependent on State policy, in the event a workstation in normal mode is disconnected from the Central SPIRIT Server, operations could continue on a designated alternate mode local SPIRIT server based on a predetermined order of precedent. The transition between normal and alternate mode should be seamless. In this instance, the ACM facilitates the transition from the normal mode to the alternate mode. This requirement provides the capability for continuity of operations.

The synchronization process shall not interfere with the ability to operate SPIRIT application in normal mode.

12.5 Alternate environment

ACM activities while disconnected from the Central SPIRIT Server
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12.5.1 Setup Transition

Once the ACM is set up, operations (including on-demand synchronization) must be sustainable by personnel who do not have a technical background. When there is automated synchronization between the Central SPIRIT Server and the Local SPIRIT Server in the normal mode, there would not be any significant delays in the transition to offline operation caused by downloading of data prior to moving to an offline location to service WIC participants.

ACM operations should not in any way change any of the functionality or screens in the SPIRIT modules.

12.5.2 Data Protection

The ACM should also support the user's option to work with more than one clinic's participant data and allow benefits to be processed and distributed to WIC participants in these clinics. (Example: Ship-board clinics servicing 3 different islands; certifying WIC participants in hospitals, church basements, etc.). Only the clinics that have been synchronized shall be available for full access.

If a participant from a normal mode clinic comes into an alternate mode clinic for service, the alternate mode clinic should have the ability to transfer the participant into the alternate mode clinic and provide the participant benefits. Conversely, if a participant from an alternate mode clinic comes into a normal mode clinic for service, the normal mode clinic should have the ability to transfer the participant record into the normal mode clinic and provide the participant benefits. Processes (i.e. messages to confirm) must be established to flag records to notify users in the normal clinic that participant records/data are being used in an alternate environment.

12.5.3 Alternate Mode Functionality

When operating in alternate mode, a client workstation shall support the same set of peripheral equipment as in the normal mode.

The ACM Project Contractor must work with the SPIRIT Enhancement Contractor to ensure transition between normal mode and alternate mode is transparent to the SPIRIT user.

ACM in the local SPIRIT server role shall support multiple client workstations connecting to it to allow the site to run as a multi workstation clinic; must provide users with full functionality of the SPIRIT clinic application; and must support EBT and paper benefit delivery mechanisms of food instruments.

The ACM can use the SPIRIT product to service WIC participants in both normal and alternate mode. For example, a user could be providing WIC participants' benefits on day one and two in a normal clinic on an ACM-enabled machine in the workstation role, move to an alternate clinic to service WIC participants on day three and four in the local SPIRIT server role, and return to the normal clinic to service participants on day five in the normal environment in the workstation role. When reconnecting after alternate mode operation, data synchronization is the process for uploading the changed records to the central database.

12.5.4 Reporting

The ACM will track and report the records changed while in alternate mode, identifying all certifications and food instruments that were processed. After synchronization with the Central SPIRIT Server, the ACM will display all changed records which did not appear in both databases. This set of "reports" will allow for reconciliation between databases. With respect to the alternate environment, upon completion of synchronization when rejoined to the central database, the ACM should report the events that occurred when not synchronized (i.e. changes to master calendar, who logged in, software updates, etc.) to support auditing. This would include the time of de-synchronization and the activities that occurred when not synchronized. The content of this report will be directed to the State Agency or other designated personnel. A daily activity report that would allow for the recreation of critical data for the day should also be considered (see *Use Case 13.3, Normal Course, 13*)

12.5.5 Synchronization

State policy dictates the length of time an ACM-enabled device can serve as the local database without being synchronized. The ACM must provide functionality to enforce the State policy. (Consider other limits that need to be determined during a JAD session.)

No data shall be lost during synchronization. The ACM device must validate for the user that all steps were successfully completed and report accurate results.

When returning from alternate mode to normal mode, the synchronization should be an automated process to avoid user error.

The ACM shall ensure both the local SPIRIT server client and the server software versions are the same as the Central SPIRIT Server software version prior to beginning synchronization.

In the event of an interruption in communications, the synchronization process shall continue from where it left off when communications are restored and with full fault tolerance.

The ACM should notify the user of any synchronization problems and (as far as possible) provide users an understanding of the process that malfunctioned. In the case of a malfunction, the ACM should attempt to automatically recover all affected data. When malfunctions occur the ACM will communicate to the user the problem and indicate what process or processes have been interrupted due to the malfunction (see 12.5.4).

12.5.6 Topology

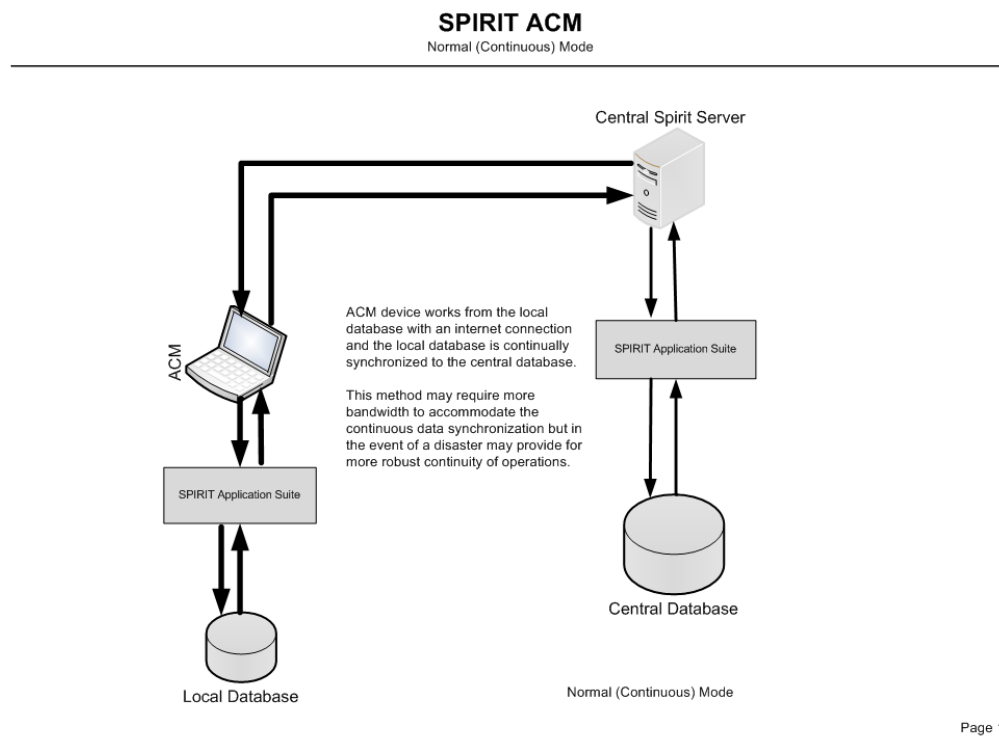


Figure 1: Online Environment Topology

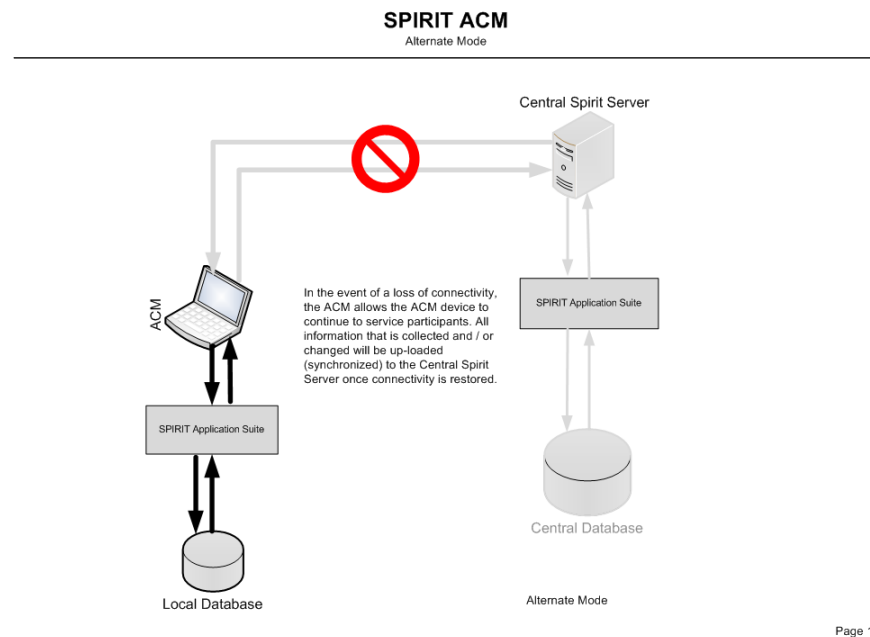


Figure 2: Alternate Environment Topology

12.5.7 Data Synchronization/Process Requirements

Moving from the offline environment to the online environment

Required Process	Outputs
Validation of Data	Notification of checks issued from state's Central SPIRIT Server Notification of checks issued from ACM filling the server role Additional data records from ACM filling the server role Participant change records for each server upon - synchronization
Duplicate records identified	Resolved on upload as potential errors Set aside for human intervention/validation
Issues during synchronization	Issues are quarantined for resolution at a later time without interrupting synchronization
Unsuccessful synchronization	Clinic is locked; data on ACM filling the server role is protected Error messages and logs tracked mapped to documentation to solve problems
Comparison report of changes	Report on who was certified/recertified to balance records on synchronization

Synchronization complete	Message confirmation
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12.6 Out of Scope

- The primary SPIRIT functionality required for remote clinic operations is clinic module functionality. Other SPIRIT module functionality needed for remote clinic operations would be defined during the Joint Application Design (JAD) sessions. An example of additional functionality might be reports reference utility, etc.

13. Use Case Scenarios

The Use Case Scenarios in this section capture the required system behaviour from the perspective of the end-user in achieving one or more desired goals. These use cases scenarios were derived from the user base and represent real-world applications of the ACM. The name of the Use Case was provided by the state submitting the Use Case.

Section	Use Case Name
13.1	Set up of ACM-enabled device(s)
13.2	Preparing the ACM device to serve WIC participants in the alternate mode
13.3	Distributing Benefits in Alternate Environment 7 Days without Synchronization of Data
13.4	Continuity of Operations – Central SPIRIT Server Crashes
13.5	Providing Participant Benefits in Alternate Mode; Retrieving Changed Records from an Activity Report A Use Case by Maine
13.6	Remote Clinic Operations
13.7	Planned Satellite outage in Alaska
13.8	Extreme Weather Events
13.9	Low Bandwidth-High Demand Internet Connection
13.10	Serving remote clinic(s) in Alaska
13.11	Rural Sites
13.12	Local Agency or clinic could conduct all SPIRIT operations from a “mobile clinic”

13.1 Use Case Narrative: ACM Device Set Up

Use Case ID:	13.1		
Use Case Name:	Set up of ACM-enabled device(s)		
Created By:	Beverly Hancock	Last Updated By:	B. Hancock
Date Created:	12/2/2010	Date Last Updated:	3/10/2011

Actors:	<ul style="list-style-type: none"> Typical Non-technical Clinic Staff who work in WIC clinics - The WIC staff performing the set up of the ACM device do not have technical expertise. ACM device
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Description:	Set up the ACM device for future alternate mode operations in clinics that do not have a connection with the state's central database/servers
Pre-conditions:	<ol style="list-style-type: none"> 1. The ACM device has been pre-configured to support the State policy. 2. The ACM has a defined menu of options WIC clinic personnel will access to ready the ACM for clinic operations. 3. The ACM menu options were defined in the initial implementation/set-up of the ACM at the State Office. 4. The ACM device is located in a Local Agency that has direct connection with the state's Central SPIRIT Server. 5. "On demand synchronization" is an ACM process requirement that is always available to WIC staff. 6. The ACM is connected to the state's Central SPIRIT Server and is operating in the workstation role in the normal mode. In this mode, the ACM has access to the state's Central SPIRIT Server where all data is stored.
Post-conditions:	<ol style="list-style-type: none"> 1. The ACM continues to operate in the workstation role with data synchronization occurring in the background based on the schedule option selected by the WIC staff. 2. In the workstation role, the ACM allows the WIC staff to access SPIRIT and provide WIC participant benefits.
Normal Course:	<ol style="list-style-type: none"> 1. The WIC clinic staff (User) accesses the ACM menu and selects the following options. <ul style="list-style-type: none"> • Synchronization for all data in Clinics A, B, and C • Synchronization for a skeletal set of data from all other State clinics (Clinics D through X) • Automated synchronization schedule (select time intervals or select specific times/days) <ul style="list-style-type: none"> ○ Every 5 minutes is selected in this scenario 2. The ACM requests user to confirm options are correct. 3. The User provides confirmation. 4. User selected options are saved as the default for the ACM device. 5. The User selects "on demand" synchronization to synchronize data between the state's Central SPIRIT Server and the ACM so that data on the Central SPIRIT Server is written to the ACM device based on the user set up options. 6. "On demand" synchronization completes. 7. ACM device generates a message notifying the user that synchronization was successfully completed. 8. ACM device generates an Activity Report showing all changed records 9. The ACM device operates in the workstation role and automated synchronization of data begins between the ACM device and the state's Central SPIRIT Server
Alternative Courses:	<u>Alternative One:</u> <ol style="list-style-type: none"> 1. Due to bandwidth limitations that impact performance speeds, the Clinic staff selects "scheduled" automated

	<p>synchronization to occur every 15 minutes (time intervals).</p> <p><u>Alternative Two:</u></p> <ol style="list-style-type: none"> 1. Due to bandwidth limitations that impact performance speeds, the Clinic staff selects "scheduled" automated synchronization to occur after the Clinic is closed each day (at a specific time). <p><u>Alternative Three:</u></p> <ol style="list-style-type: none"> 5. User is not required to initiate "on demand" synchronization when setting up the ACM device unless mandated by state policy. If the staff does not choose to initiate "on demand" synchronization, synchronization will occur based on the schedule "option" selected for automated synchronization (i.e. time intervals, or selected times/days). <p><u>Alternative Four:</u></p> <ol style="list-style-type: none"> 5. If state policy mandates "on demand" synchronization following ACM device setup, then the ACM device enforces this policy by requiring "on demand" synchronization as part of the set up process.
Exceptions:	<ol style="list-style-type: none"> 4. The ACM will not save User selected options 4. User cannot change the default settings 6. "On demand" synchronization does not complete successfully 7. "On demand" synchronization completes but ACM does not validate data integrity is maintained 7. User is not able to follow up on data integrity problems due to lack of information provided by the ACM
Includes:	
Priority:	High
Frequency of Use:	Initial set up plus ongoing changes to the set up based on need
Business Rules	
Special Requirements:	State policy must be reinforced by the ACM device.
Assumptions:	<p>The state would predetermine the parameters for records available to a clinic or Local Agency for remote operations.</p> <p>Of the available records, the clinic or Local Agency could determine which records they needed for each remote operation.</p> <p>A connection to the state's Central SPIRIT Server is necessary for data synchronization to occur.</p>
Notes and Issues:	<p>If there is a problem with the set up of the ACM device, the ACM device must notify the staff performing the set up, identify the problem and provide a detailed solution with instructions. Instructions must be easy for non-technical staff to perform.</p>

13.2 Use Case Narrative: Preparing the ACM Device for the Alternate Mode

Use Case ID:	13.2		
Use Case Name:	Preparing the ACM device to serve WIC participants in the alternate mode		
Created By:	Beverly Hancock	Last Updated By:	B. Hancock
Date Created:	12/2/2010	Date Last Updated:	3/10/2011

Actors:	<ul style="list-style-type: none"> • Typical Non-technical Clinic Staff who work in WIC clinics • ACM Device
Description:	<p>WIC staff is preparing to travel to remote locations where there is no connectivity to the state's Central SPIRIT Servers. The ACM will be filling the server role at the remote clinic locations. Today the WIC staff will open remote Clinic A from 11 AM until 2 PM and serve WIC participants. Travel time to Clinic A is 1 hour. Prior to traveling to the remote clinic, the WIC staff must ensure the ACM device contains up to date data to operate the remote clinics in alternate mode in the server role.</p> <p>The task is to ensure data residing on the ACM device is synchronized with the state's Central SPIRIT Servers prior to traveling to remote clinics to service WIC participants.</p>
Pre-conditions:	<ol style="list-style-type: none"> 1. The ACM device is located in a Local Agency that has direct connection with the state's Central SPIRIT Server. 2. The ACM device is connected to the state's Central SPIRIT Server and is operating in the normal workstation role. 3. Data Synchronization between the ACM and the state's Central SPIRIT Server is performed on the automated synchronization schedule selected during set up.
Post-conditions:	The ACM device is reconnected to the state's Central SPIRIT Servers and the ACM returns to operating in the normal workstation mode.
Normal Course:	<ol style="list-style-type: none"> 1. The WIC staff are able to view current ACM device setup. 2. The ACM displays the current selections- <ol style="list-style-type: none"> a. ACM device contains all data for clinics A, B, and C and skeletal data for clinics D through X. b. The ACM device synchronizes data once a day at midnight. 3. The WIC staff select "on demand" synchronization 4. "On demand" synchronization completes 5. The ACM notifies the user that synchronization was successfully completed. 6. ACM device generates an Activity Report and users can access/retrieve all changed records

	7. The ACM device is disconnected from the state's Central SPIRIT Server and packed for travel to the clinic
Alternative Courses:	<p><u>Alternative One:</u> The WIC staff will take the ACM device to Clinic D today to administer WIC participant benefits.</p> <ol style="list-style-type: none"> When viewing the current ACM setup, the staff notes the ACM device has only skeletal data for Clinic D. The WIC staff select the option for full data for Clinic D in addition to full data for Clinics A, B, and C. "On demand" synchronization is initiated by the WIC staff. <p><u>Alternative Two:</u> The WIC staff will take the ACM device to Clinic D today, Clinic E and Clinic F the following days to administer WIC participant benefits. Clinic D, E, and F are remote clinics with no connectivity to the state's Central SPIRIT Servers.</p> <ol style="list-style-type: none"> When viewing the current ACM setup, the staff notes the ACM device has only skeletal data for Clinics D, E, and F. The WIC staff select the option for full data for Clinics D, E, and F and skeletal data for Clinics A, B, C, G through X. "On demand" synchronization is initiated by the WIC staff. <p><u>Alternative Three:</u></p> <ol style="list-style-type: none"> "On demand" synchronization is a required function according to this state's policy and is initiated by the ACM when setup is changed.
Exceptions:	<ol style="list-style-type: none"> During the "on demand" synchronization, connectivity between the ACM and the state's Central SPIRIT Server is interrupted. Upon restoration of the connection, the ACM does not resume "on demand" synchronization and will not synchronize with the state's Central SPIRIT Server. The ACM fails to verify records between the ACM device data and the state's Central SPIRIT Server, <ul style="list-style-type: none"> Fails to produce a report that indicates if all records were successfully synchronized, Fails to identify the problems that occurred or provide instructions a non-technical person can follow to remedy the problem Fails the synchronization process
Includes:	Use Case 12.1
Priority:	High
Frequency of Use:	Weekly or Monthly
Business Rules	State policy must be reinforced by the ACM process
Special Requirements:	
Assumptions:	<p>The state would predetermine the parameters for records available to a clinic or Local Agency for remote operations.</p> <p>Of the available records, the clinic or Local Agency could determine which records they needed for each remote operation.</p>

	<p>A connection to the state's Central SPIRIT Server is necessary for data synchronization to occur.</p> <p>The ACM device can go for up to 7 days (according to state policy) before synchronization with the state's Central SPIRIT Server is required.</p>
Notes and Issues:	<p>It is possible a clinic may connect the ACM device to the state's Central SPIRIT Servers only during setup and uploading changed data after returning from a remote clinic. In this instance, the ACM device does not fill the workstation role in a normal mode/environment. The only type of synchronization used would be "on demand" synchronization.</p>

13.3 Use Case Narrative: Distributing Benefits in Alternate Environment

Use Case ID:	13.3		
Use Case Name:	Distributing benefits in alternate environment 7 Days without synchronization of data		
Created By:	Terry Hoskinson	Last Updated By:	Beverly Hancock
Date Created:	9/29/2010	Date Last Updated:	11/12/2010

Actors:	<ul style="list-style-type: none"> • Typical Non-technical Clinic Staff who work in WIC clinics • WIC Participants – Receive Federal benefits in the form of a check or Electronic Benefits Transfer Card to purchase WIC food, baby formula, and prescriptions • ACM device • State's Central SPIRIT Server
Description:	<p>A three member Local Agency team is to travel to the North Eastern geographic region of the State and service WIC participants in Clinics A, B, and C. These three clinics have no connectivity to the state's Central SPIRIT Server. The ACM contains all the WIC participant data for clinics A, B, and C and a skeletal record of all Clinics' data from around the State.</p>
Pre-conditions:	<p>The ACM device is located in a Local Agency that has direct connection with the state's Central SPIRIT Server. The ACM device is connected to the state's Central SPIRIT Server and is operating in the normal mode. There is automated synchronization of data between the ACM and the state's Central SPIRIT Server.</p>
Post-conditions:	<p>Upon return of the ACM device to the Local Agency, the ACM is reconnected to the state's Central SPIRIT Servers and returns to operating in the normal mode. There is automated synchronization of data between the ACM and the state's Central SPIRIT Server.</p>

Normal Course:	<ol style="list-style-type: none"> 1. The state team disconnects the ACM device from the state's Central SPIRIT Server and packs the ACM device for travel. 2. The state's Central SPIRIT Server locks the files for Clinics A, B, and C. 3. The state team packs the ACM device, two laptop workstations, two scanners, two signature pads and a printer and loads the equipment for travel. The objective is to travel to the clinics and set up a LAN so that multiple WIC participants can be serviced at the same time. 4. The team and equipment arrive at clinic A, unpack the equipment and set up a WIC clinic. Two laptop workstations are connected to the ACM device via a simple Local Area Network. The scanners, signature pads and printer are connected to the workstations. A LAN is established and the ACM fills the server role. 5. The state team works with two WIC participants concurrently using the two workstations. The clinic is open and the team services WIC participants until 3 PM. 6. The equipment is repacked for travel to clinic B. The next morning, the team arrives at clinic B. The equipment is setup in the same manner as in Clinic A. 7. WIC participants are served in clinic B from 10 AM until 3 PM. 8. All equipment is packed to travel to Clinic C. The next morning, the team arrives at Clinic C. The team does not expect to service as many WIC participants in this location. The team decides they will only need to enter participant data into the ACM device. At this clinic, the scanner, signature pad and printer are connected to the ACM device. 9. The ACM device will fill both the server role and the workstation role at Clinic C. Participant data will be entered into the ACM device. 10. The clinic operates from 10 AM until 1 PM. 11. After servicing the WIC participants, the equipment is again packed and loaded for travel back to the Local Agency. 12. Due to inclement weather, the trip back to the Local Agency must be postponed one day. The team remains at Clinic C on day 4. On day 5, the team arrives at the Local Agency. 13. An Activity Report is generated from the ACM device that shows all the changed records. The Activity Report contains all changed records including all certifications that were performed as well as all checks and check amounts issued. 14. The ACM device is reconnected to the state's Central SPIRIT Server. 15. Data synchronization completes. The ACM verifies synchronization was completed successfully and data integrity was maintained 16. The ACM generates an Activity Report that shows all the changed records uploaded to the Central SPIRIT Server. 17. The team may compare the Activity Reports to verify all
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	changed records were synchronized with the Central SPIRIT Server
Alternative Courses:	<p><u>Alternative One:</u> The team may decide to alter the LAN topology set up in clinics A, B, or C.</p> <ul style="list-style-type: none"> Two workstations might be connected to the ACM. The ACM device might serve a dual role as a workstation and server. This would allow three WIC participants to be serviced at the same time. <p><u>Alternative Two:</u> Traveling between Clinics A, B and C, the team stops to rest in a hotel that offers Internet connectivity.</p> <ol style="list-style-type: none"> An Activity Report is generated from the ACM device that shows all the changed records. The Activity Report contains all changed records including all certifications that were performed as well as all checks and check amounts issued. The ACM device is reconnected to the state's Central SPIRIT Server. Data synchronization completes. The ACM verifies synchronization was completed successfully and data integrity was maintained The ACM generates an Activity Report that shows all the changed records uploaded to the Central SPIRIT Server. The team may compare the Activity Reports to verify all changed records were synchronized with the Central SPIRIT Server <p><u>Alternative Three:</u> While servicing WIC participants at Clinic A, a WIC participant who usually receives benefits at Clinic C arrives at Clinic A. The team transfers the participant records from Clinic C to Clinic A in the SPIRIT application. The participant receives their benefits.</p> <p><u>Alternative Four:</u> While servicing WIC participants at Clinic A, a WIC participant arrives at Clinic A who is from the South East region of the State and usually receives her benefits at one of the clinics that is connected to the state's Central SPIRIT Server. The participant is visiting family in the area and wants to receive her WIC benefits prior to traveling to her home region of the state. The team transfers the participant records from the clinic in the South East region of the State. The participant receives her WIC benefits.</p> <p><u>Alternative Five:</u> When uploading the changed records, connectivity between the ACM device and the state's Central SPIRIT Server is interrupted. Upon restoration of the connection, changed records are transferred to the state's Central SPIRIT Server. This is an auto function of the ACM. Once synchronization is complete, the ACM indicates to the user synchronization was</p>

	successful and generates an Activity Report of all changed records uploaded to the Central SPIRIT Server.
Exceptions:	<ul style="list-style-type: none"> • Data Synchronization is not successful; staff is not aware of the problem; travel occurs and the ACM device does not work in the field clinics. • ACM device will not work in the workstation role • ACM device will not work in the server role • ACM device will not support peripheral equipment needed for clinic operations
Includes:	<u>Use Case 12.1; Use Case 12.2</u>
Priority:	High
Frequency of Use:	Bi-Weekly or Monthly
Business Rules	State policy must be reinforced by the ACM process
Special Requirements:	Ability for the ACM device to remain remote for 7 days before synchronization with the state's Central SPIRIT Server; The team using the ACM device are clinic staff and not technical and technical expertise is not available in remote clinics; 100% data integrity must be maintained; ACM device must be able to be transported easily without functional problems.
Assumptions:	<p>The state would predetermine the parameters for records available to a clinic or Local Agency for remote operations.</p> <p>A connection to the state's Central SPIRIT Server is necessary for data synchronization to occur.</p>
Notes and Issues:	In all of these uses, some likelihood that a dial-up connection could be established to transmit banking (issuance and voids) information

13.4 Use Case Narrative: Continuity of Operations

Use Case ID:	13.4		
Use Case Name:	Continuity of Operations – Central SPIRIT Server Crashes		
Created By:		Last Updated By:	B Hancock
Date Created:		Date Last Updated:	3/10/2011

Actors:	<ul style="list-style-type: none"> • Typical Non-technical Clinic Staff who work in WIC clinics • WIC Participants – Receive Federal benefits in the form of a check or Electronic Benefits Transfer Card to purchase WIC food, baby formula, and prescriptions. • Promoted ACM • state's SPIRIT central Server
Description:	Objective is to be able to provide full WIC services in the event the States' central SPIRIT Sever fails.

	<p>The northeast part of the state contains five WIC clinics operating in normal mode. Each clinic is staffed with between three and five persons. All clinics personnel are using SPIRIT to enter participant information and service WIC participants. The connection to the state's Central SPIRIT Server is lost for all 5 clinics in the middle of the morning.</p>
Pre-conditions:	<p>ACM setup has been completed. The clinic is functioning normally with connectivity between the ACM device and the state's central Server.</p> <p>The ACM device is located in a Local Agency that has direct connection with the state's Central SPIRIT Server. The ACM is connected to the state's Central SPIRIT Server and is operating in the normal mode. There is frequent automated synchronization of data between the ACM and the state's Central SPIRIT Server. There may be from 3 to 12 staff working in SPIRIT at each clinic.</p>
Post-conditions:	<p>Upon return of connection with the central server and the Local Agencies, automated synchronization of data between the ACM and the state's Central SPIRIT Server resumes in normal mode. There has been no (or very limited) interruption in issuing benefits or in the collection of participant data.</p>
Normal Course:	<ol style="list-style-type: none"> 1. Mid morning all five clinics receive messages from the ACM that the connection with the state Central SPIRIT Server has been lost. 2. At each clinic a predetermined ACM promotes to a clinic-wide local server and assumes a limited role as the state Central SPIRIT Server for the duration of the outage. 3. Each local workstation now connects to the local server and continues operation. 4. The ACM activates and saves the data to the local database and begins to utilize the latest saved information from the local database. 5. ACM shows a message to the users that they are now operating in Alternate mode and that connection with the local server has been established. 6. The ACM serving as the local server prompts the staff to save their data before proceeding. 7. The Staff are able to continue to take participant data and issue benefits such as checks, Electronic Benefit Transfer (EBT) cards and prescriptions to the participants. 8. Once connection between the ACM and the state Central SPIRIT Server has been restored, the ACM notifies the users that the connection with the state Central SPIRIT Server has been restored and the system resumes normal operations. 9. At this point the ACM (local server) generates an Activity Report of all data entered into the system since the time the connection was lost. . 10. The ACM synchronizes with the state's Central SPIRIT Server. 11. Data synchronization completes.

	<p>12. The ACM verifies synchronization was completed successfully and data integrity was maintained</p> <p>13. ACM notifies the user that synchronization completed successfully</p> <p>14. The ACM generates an Activity Report that shows all the changed records uploaded to the Central SPIRIT Server.</p> <p>15. The team may compare the Activity Reports to verify all changed records were synchronized with the Central SPIRIT Server</p>
Alternative Courses:	<p><u>Alternative One:</u></p> <p>8. This outage lasts longer than the state mandated ACM device non-synchronized time allowance policy. Prior to the deadline established by state policy, the central server sends an alert to the point of contact designated by the state office during the set up phase. The timing of the alert will be established during setup. If the outage time allowance is exceeded the state's Central SPIRIT Server refuses the connection to the ACM, locking it out. The team calls the helpdesk and the helpdesk overrides the lock-out. Once the helpdesk overrides the lockout and connection between the ACM device and state Central SPIRIT Server is restored, the ACM notifies the users that the connection with the state Central SPIRIT Server has been restored and the system resumes normal operation.</p>
Exceptions:	<ul style="list-style-type: none"> • Unsynchronized time allowance (mandated by State policy) has expired and the help desk is unable to override the lockout • Data is lost when outage occurs • Pre-determined ACM device does not promote to the local server role • Local workstations will not connect to the promoted ACM device • WIC personnel are aware of the outage but do not receive a message from the ACM to resume serving WIC participants • ACM does not allow users access to the changed records for WIC personnel to follow up on data integrity problems • The ACM that is to be promoted in case of lost connection with the state's SPIRIT server is not properly synchronizing with the state's SPIRIT server when operating in the normal workstation role
Includes:	Use Case 12.1
Priority:	High
Frequency of Use:	Often, especially in rural, remote locations
Business Rules	State policy must be reinforced by the ACM process – promotion order for the ACM
Special Requirements:	<ul style="list-style-type: none"> • Swift promotion of designated ACM in each clinic to local server • Automated synchronization of ACM in the workstation role while in normal operations

Assumptions:	<ul style="list-style-type: none"> • ACM can detect the connection loss with the state's Central SPIRIT Server and take appropriate action. • Connection to the local server can be made in a near instantaneous time frame. • ACM devices that are not promoted to local server recognize the promoted ACM device and make the connection to the local server before data is lost. • ACM knows which ACM device is to be promoted to local server role. • ACM knows when to demote from local server to workstation role based on connectivity state. • If data entered is lost after loss of connectivity but prior to going to alternate mode, the ACM should immediately alert the WIC personnel to re-enter the WIC participant data.
Notes and Issues:	<p>Outages occur at unknown times and are of unknown duration.</p> <p>In all of these uses, some likelihood that a dial-up connection could be established to transmit banking (issuance and voids) information.</p>

13.5 Use Case Narrative: Maine Goes Boating

Use Case ID:	13.5		
Use Case Name:	Providing Participant Benefits in Alternate Mode; Retrieving Changed Records; Maine Goes Boating		
Created By:		Last Updated By:	B Hancock
Date Created:		Date Last Updated:	3/10/2011

Actors:	<ul style="list-style-type: none"> • Typical Non-technical Clinic Staff who work in WIC clinics • WIC Participants – Receive Federal benefits in the form of a check or Electronic Benefits Transfer Card to purchase WIC food, baby formula, and prescriptions.
Description:	<p>Objective is to provide WIC services to participants using the SPIRIT application in a mobile environment where there is no connectivity to the state's Central SPIRIT Server.</p> <p>A three member Local Agency team is to travel to the North Eastern geographic region of the State and service WIC participants in Clinics A, B, C and D. Clinics A and B have no connectivity while Clinics C and D have limited or intermittent connectivity. Clinics A and B are on costal islands. There is no internet or intranet connectivity on the islands.</p>
Pre-conditions:	<p>ACM device set up has been completed. The ACM device contains all the WIC participant data for clinics A, B, C, and D in the North Eastern geographic region of the State including island communities serviced by the Local Agency. The ACM device has skeletal records for all the rest of the state's clinics. Clinics A, B, C and D have no connectivity to the state's Central SPIRIT Server.</p> <p>The ACM device is currently located in a Local Agency that has</p>

	direct connection with the state's Central SPIRIT Server. The ACM device is connected to the state's Central SPIRIT Server and is operating in the normal mode. There is frequent automated synchronization of data between the ACM and the state's Central SPIRIT Server.
Post-conditions:	Upon return of connection with the central server, automated synchronization of data between the ACM and the state's Central SPIRIT Server resumes in normal mode.
Normal Course:	<p><u>Day1:</u></p> <ol style="list-style-type: none"> 1. The team disconnects the ACM device from the state's Central SPIRIT Server. 2. The state's Central SPIRIT Server locks the database records for Clinics A, B, C and D 3. The team packs the ACM device, two laptop workstations, two scanners, two signature pads and a printer and loads the equipment for travel. The objective is to travel to the clinics and set up a LAN so that multiple WIC participants can be serviced at the same time. The equipment is loaded onto a boat for travel to clinic A. 4. They arrive at clinic A and set up the local LAN and peripheral equipment and service the participants, collect participant data, and issue participant benefits (print checks, issue EBT cards, replacement EBT cards, or reload EBT cards). They also make appointments for participants. 5. At end of day, the clinic is closed and an Activity Report is generated from the ACM for day 1. Personnel stay at a hotel that does not offer internet. <p><u>Day 2:</u></p> <ol style="list-style-type: none"> 1. WIC personnel pack the equipment and proceed to clinic B via boat. 2. A WIC participant from Day 1 calls the state's Main WIC Office to change an appointment made on Day 1 for clinic A. Since the state's SPIRIT database for clinic A is locked, the appointment change will be stored and will be sent to the ACM when the ACM device is reconnected to the state's central server and data synchronization occurs. 3. Once at Clinic B, the WIC personnel proceed to service participants in the same manner as in Day 1. 4. At end of day, the clinic is closed and an Activity Report is generated from the ACM for day 1 and/or day 2 if needed. Personnel stay at a hotel that does not offer internet. <p><u>Day 3:</u></p> <ol style="list-style-type: none"> 1. WIC personnel pack the equipment and proceed to clinic C on the mainland. 2. They arrive at clinic C and set up the LAN. 3. The WIC personnel continue on as in days 1 and 2, serving WIC participants. 4. An Activity Report is generated from the ACM for day 1,

	<p>day 2 and/or day 3.</p> <p>5. That evening the WIC personnel are able to stay in a hotel that offers internet access and they synchronize data between the ACM device and the state's Central SPIRIT Server. After synchronization, the WIC personnel in the hotel can see the appointment that was change from day 2 through the ACM device.</p> <p><u>Day 4:</u></p> <ol style="list-style-type: none"> 1. WIC personnel pack the equipment and travel one hour to clinic D. 2. They arrive at clinic D and set up the LAN. 3. WIC participants are served. 4. An Activity Report is generated from the ACM for day 1, day 2, day 3 and/or day 4 if needed. 5. WIC personnel repack the equipment and travel back to the local agency where there is internet connectivity.
Alternative Courses:	<p><u>Day 3:</u></p> <p>During the boat crossing from Clinic B to Clinic C on the mainland, the ACM device is damaged and is no longer usable. The WIC personnel brought a second ACM device along for the 4 day trip to clinics A, B, C and D. The second ACM device has been connected by the LAN to the primary ACM device. The second ACM device has been working in the workstation role. The second ACM device is promoted to the ACM server role. The second ACM device must also have the changed data from day 1 and 2, or there must be a means to recover the data from days 1 and 2 prior to operating Clinic C.</p>
Exceptions:	<ul style="list-style-type: none"> • The ACM notifies the user there is a problem with the changed records or clinic records were lost • WIC personnel are not able to access/retrieve changed records
Includes:	Use Case 12.1
Priority:	High
Frequency of Use:	Bi-Weekly or Monthly
Business Rules	State policy must be reinforced by the ACM process
Special Requirements:	<ul style="list-style-type: none"> • Ability to access/retrieve changed records • Portable and durable equipment that can easily be transported via boat, small plane or car.
Assumptions:	<p>ACM device successfully synchronized all four clinics during synchronization</p> <p>That it is possible for a second ACM device to work efficiently for continuity of operations in an environment where there is no connection to the state's central server</p> <p>State has set one week as maximum time in alternate mode.</p>
Notes and Issues:	In all of these uses, some likelihood that a dial-up connection could be established to transmit banking (issuance and voids) information.

13.6 Use Case Narrative: Remote Clinic Operations

Use Case ID:	13.6		
Use Case Name:	Remote Clinic Operations		
Created By:		Last Updated By:	B. Hancock
Date Created:		Date Last Updated:	3/10/2011

Actors:	<ul style="list-style-type: none"> • Typical Non-technical Clinic Staff who work in WIC clinics • WIC Participants – Receive Federal benefits in the form of a check or Electronic Benefits Transfer Card to purchase WIC food, baby formula, and prescriptions. • ACM device • state's Central SPIRIT Server
Description:	Typical ACM Device Remote Operations - A three person team is schedule to go to a clinic in the far western part of the state where there is no connection to the state's Central SPIRIT Server.
Pre-conditions:	<p>ACM device setup has been completed. The clinic is functioning normally with connectivity between the ACM device and the state's central Server.</p> <p>The ACM device is located in a Local Agency that has direct connection with the state's Central SPIRIT Server. The ACM device is connected to the state's Central SPIRIT Server and is operating in the normal mode. There is frequent automated synchronization of data between the ACM device and the state's Central SPIRIT Server. There may be from 3 to 12 staff working in SPIRIT at each clinic.</p>
Post-conditions:	Upon return of connection with the state's Central SPIRIT Server and the Local Agencies, automated synchronization of data between the ACM device and the state's Central SPIRIT Server resumes in normal mode.
Normal Course:	<ol style="list-style-type: none"> 1. Prior to disconnecting the ACM device from the state's Central SPIRIT Server they perform on-demand synchronization for the clinic that they are travelling to (Clinic X). 2. The state's Central SPIRIT Server <u>does not</u> lock the records for Clinic X. 3. The team disconnects the ACM device from the state's Central SPIRIT Server. 4. The team packs the ACM device, two laptop workstations, two scanners, two signature pads and a printer and loads the equipment for travel. The objective is to travel to Clinic X and set up a LAN so that multiple WIC participants can be serviced at the same time. 5. The team and equipment arrive at Clinic X, unpack the equipment and set up a WIC clinic. Two laptop workstations are connected to the ACM device via a simple Local Area Network. The scanners, signature pads and printer are connected to the workstations. A LAN is established and the ACM device fills the server role.

	<ol style="list-style-type: none"> 6. The team works with two WIC participants concurrently using the two workstations. 7. The team transfers a participant from another Local Agency into Clinic X and is able to print benefits. They also transfer another participant from yet another Local Agency from the eastern edge of the state to Clinic X and certify that user for benefits. 8. They scan and store qualifying documents, capture signatures on the pin-pad and print schedules and checks (if not EBT cards). The team services WIC participants until 3 PM. 9. The equipment is repacked for travel back to the originating Local Agency. 10. After returning to the originating Local Agency, an Activity Report is generated. 11. ACM has all data entered since the time that connection with the state's Central SPIRIT Server was terminated. 12. The ACM device is reconnected to the network and communication with the state's Central SPIRIT Server is restored. 13. ACM synchronizes with the state's Central SPIRIT Server. 14. Data synchronization completes. 15. The ACM verifies synchronization was completed successfully and data integrity was maintained 16. ACM verifies there were no duplicate check numbers if the clinic issues checks as the food instrument 17. ACM notifies users that synchronization completed successfully 18. The ACM generates an Activity Report that shows all the changed records uploaded to the Central SPIRIT Server. 19. The team may compare the Activity Reports to verify all changed records were synchronized with the Central SPIRIT Server 20. ACM resumes the normal workstation role.
Alternative Courses:	<p><u>Alternative One:</u></p> <ol style="list-style-type: none"> 2. The state's Central SPIRIT Server <u>locks</u> the records for Clinic X. <p><u>Alternative Two:</u></p> <ol style="list-style-type: none"> 4. The team takes two ACM devices to the clinic. One ACM device is setup to be the local server for the alternate mode clinic. The other ACM device will connect to the local server with a wireless LAN connection and operate in a workstation role. <p><u>Alternative Two:</u></p> <ol style="list-style-type: none"> 10. The clinic ends in the afternoon and WIC personnel are overnight at a hotel with internet connectivity. On demand synchronization occurs through the hotel internet connection. ACM validates synchronization was completed with no loss of data integrity. <p><u>Alternative Three:</u></p> <ol style="list-style-type: none"> 6. While the WIC team is at clinic A, a participant from alternate clinic B calls the Local Agency (originating home base) for an appointment. User at the originating Local Agency logs into alternate clinic B and makes the appointment. The remote team is unaware of the change.

	The next morning the users open clinic B and begin to service participants as in day one. The participant who called the originating local agency for the appointment at clinic B shows up. Because the users were unable to synchronize with the state's Central SPIRIT Servers prior to opening clinic B, they were unaware of the appointment. The WIC personnel work the participant into the clinic B's workflow. After data synchronization with the state's Central SPIRIT Server, the appointment conflict is resolved automatically.
Exceptions:	<ul style="list-style-type: none"> • Data Synchronization is not successful; staff are not aware of the problem; travel occurs and the ACM device does not work in the field clinics. • ACM device will not work in the workstation role • ACM device will not work in the server role • ACM device will not support peripheral equipment needed for clinic operations
Includes:	Validation of data integrity, successful synchronization notifications, staff have a way to know what records were changed and follow up if there is a problem with data integrity
Priority:	High
Frequency of Use:	Very Often (typical use)
Business Rules	State policy must be reinforced by the ACM process
Special Requirements:	
Assumptions:	<ul style="list-style-type: none"> • The Local Agency network is sufficient in both bandwidth and quality to accommodate data replication. • The Wireless LAN can be set up and operational • All SPIRIT functionality is available through ACM device
Notes and Issues:	In all of these uses, some likelihood that a dial-up connection could be established to transmit banking (issuance and voids) information.

13.7 Use Case Narrative: Planned Satellite Outage - Alaska

Use Case ID:	13.7		
Use Case Name:	Planned Satellite outage in Alaska		
Created By:	Pat Nault	Last Updated By:	B Hancock
Date Created:		Date Last Updated:	3/10/2011

Actors:	<ul style="list-style-type: none"> • Typical Non-technical Clinic Staff who work in WIC clinics • WIC Participants – Receive Federal benefits in the form of a check or Electronic Benefits Transfer Card to purchase WIC food, baby formula, and prescriptions. • ACM device • state's Central SPIRIT Server
Description:	<p>Operations at a connected Local Agency during satellite outage affecting connectivity with the state's Central SPIRIT Server</p> <ul style="list-style-type: none"> • Preparations for the outage • Continued operations during the outage

	<ul style="list-style-type: none"> Reconnecting with the state's Central SPIRIT Server
Pre-conditions:	<p>The clinic is functioning normally with connectivity between the ACM device and the state's central Server.</p> <p>The ACM device is located in a Local Agency that has direct connection with the state's Central SPIRIT Server. The ACM device is connected to the state's Central SPIRIT Server and is operating in the normal mode. There is frequent automated synchronization of data between the ACM device and the state's Central SPIRIT Server. There may be from 3 to 12 staff working in SPIRIT at each clinic.</p>
Post-conditions:	<p>Upon reconnection with the state's Central SPIRIT Server, automated synchronization of data between the ACM device and the state's Central SPIRIT Server resumes in normal mode.</p>
Normal Course:	<p><u>Preparations for a planned outage:</u></p> <ol style="list-style-type: none"> The planned outage is scheduled and is about to occur. The team prepares as if the clinic were to go mobile. Prior to disconnecting the ACM device from the server they perform on-demand synchronization for the clinic. The state's Central SPIRIT Server does not lock the records. The team disconnects the ACM device from the state's Central SPIRIT Server and promotes the ACM to the server role. <p><u>Continued operations during outage:</u></p> <ol style="list-style-type: none"> The team continues to see participants, performing certifications scanning documents, issuing benefits in the form of paper checks or issuing/reloading EBT benefits as well as adding to clinical data until the outage is past and the ACM regains communication with state's Central SPIRIT Server. <p><u>Reconnecting with the state's Central SPIRIT Server after outage:</u></p> <ol style="list-style-type: none"> An Activity Report is generated that shows the data entered into the system since the time that connection with the Central SPIRIT Server terminated. The ACM synchronizes with the state's Central SPIRIT Server. Data synchronization completes. The ACM verifies synchronization was completed successfully and data integrity was maintained ACM verifies there were no duplicate check numbers if the clinic issues checks as the food instrument ACM notifies users that synchronization completed successfully The ACM generates an Activity Report that shows all the changed records uploaded to the Central SPIRIT Server. The team may compare the Activity Reports to verify all changed records were synchronized with the Central SPIRIT Server The ACM notifies users that the connection with the state central server has been restored The ACM resumes workstation role in the normal

	operation.
Alternative Courses:	
Exceptions:	<ul style="list-style-type: none"> ACM device does not synchronize properly Data completeness after synchronization cannot be verified Staff cannot issue WIC participant benefits during outage Workstations cannot communicate with the ACM device during outage
Includes:	Validation of data integrity, synchronization occurred successfully, staff have a way to know what records were changed and follow up if there is a problem with data integrity
Priority:	High
Frequency of Use:	Often
Business Rules	State policy must be reinforced by the ACM process
Special Requirements:	
Assumptions:	<ol style="list-style-type: none"> State issues a published schedule of Outage Normal operations are occurring both before and after outage. All SPIRIT functionality is available through ACM device.
Notes and Issues:	<p>In all of these uses, some likelihood that a dial-up connection could be established to transmit banking (issuance and voids) information.</p> <p>There should be no obvious sign of the transition from online to offline back to online.</p>

13.8 Use Case Narrative: Extreme Weather Events

Use Case ID:	13.8		
Use Case Name:	Extreme Weather Events		
Created By:	D. Briggs	Last Updated By:	B. Hancock
Date Created:		Date Last Updated:	3/10/2011

Actors:	<ul style="list-style-type: none"> Typical Non-technical Clinic Staff who work in WIC clinics WIC Participants – Receive Federal benefits in the form of a check or Electronic Benefits Transfer Card to purchase WIC food, baby formula, and prescriptions. ACM device
Description:	<p>Tornado (or other extreme weather event) hits a community with a clinic, disrupting normal operations.</p> <p>A clinic is in normal operations with connection to a state central server. An extreme weather event occurs that disrupts connection, possibly with little or no warning, with the state's Central SPIRIT Server or damages the local agency to the point where the staff has to provide services from an alternate location such as a church basement, back of a van, or a local library. The event disrupts internet connectivity and prevents access to the state's Central SPIRIT Server.</p>
Pre-conditions:	ACM device setup has been completed. The clinic is functioning

	<p>normally with connectivity between the ACM device and the state's central Server.</p> <p>The ACM device is located in a Local Agency that has direct connection with the state's Central SPIRIT Server. The ACM device is connected to the state's Central SPIRIT Server and is operating in the normal mode. There is frequent automated synchronization of data between the ACM device and the state's Central SPIRIT Server. There may be from 3 to 12 staff working in SPIRIT at each clinic.</p>
Post-conditions:	<p>Upon return of connection with the central server and the Local Agencies automated synchronization of data between the ACM device and the state's Central SPIRIT Server resumes in normal mode.</p>
Normal Course:	<ol style="list-style-type: none"> 1. In the post-event, the ACM device is recovered from the clinic along with other necessary equipment for clinic operations. 2. The ACM device is operational. 3. The ACM device has the latest copy of the database as of the time of the disaster since the ACM was in automated synchronization mode while at the Local Agency. 4. The team travels to a location that has been predetermined in their Disaster Recovery plan to set up clinic operations using the ACM device as the local server. 5. The equipment and LAN are set up and the scanners, printers and other laptops are checked for connectivity to the local server and for proper operation. 6. The team begins to see WIC participants. They certify WIC participants, scan documents, issue benefits in the form of paper checks or issue/reload EBT benefits as well as adding to clinical data. 7. A connection with the state's Central SPIRIT Server is again available. 8. The ACM contains all data entered into the system since the time that connection terminated. 9. An Activity Report is generated. 10. The ACM device synchronizes with the state's Central SPIRIT Server. 11. Data synchronization completes. 12. The ACM verifies synchronization was completed successfully and data integrity was maintained 13. ACM verifies there were no duplicate check numbers if the clinic issues checks as the food instrument 14. ACM notifies users that synchronization successfully completed 15. The ACM generates an Activity Report that shows all the changed records uploaded to the Central SPIRIT Server. 16. The team may compare the Activity Reports to verify all changed records were synchronized with the Central SPIRIT Server 17. The ACM device notifies users that the connection with the state Central SPIRIT Server has been restored

	18. The ACM device resumes workstation role in the normal operation.
Alternative Courses:	<p><u>Alternative One:</u> In the event of a Katrina-type event, connectivity to the state central server may not be available for several weeks. In this case, local ACM devices will assume the local server role for the duration of the event. The state is able to override the policy limitation for synchronizing data on the ACM device. Assuming the local agency has adequate supplies (check stock, EBT cards, paper, fuel for generators, etc.) the ACM device in the local server role can effectively handle the participant load. Once connectivity to the state's Central SPIRIT Server is finally restored, the ACM devices will synchronize with the state's Central SPIRIT Server and normal operations will resume.</p> <p><u>Alternative Two:</u> The state central server is destroyed. The state local agencies ACM devices will automatically go into local server mode and each agency will handle it's clinics as normal. In this case, transfer of participants will be possible due to the skeletal database that each local ACM device maintains. But in this scenario it will be impossible to validate participants who cross between local agencies to obtain multiple benefits until a new state Central SPIRIT Server is set up and back online.</p> <p>When a new state SPIRIT central computer is back online, the local ACM devices will synchronize, restoring the state's Central SPIRIT Server's database. The participants who visited multiple local clinics for the purpose of obtaining multiple benefits not allowable by regulation will be flagged for further investigation.</p>
Exceptions:	<ol style="list-style-type: none"> 2. The ACM device is not operational. 3. The ACM device was not synchronized and does not have a current copy of the clinic database.
Includes:	<ul style="list-style-type: none"> • Current copy of clinic database • Skeletal database • Successful synchronization processes • Validating data integrity
Priority:	High
Frequency of Use:	Rare
Business Rules	State policy must be reinforced by the ACM process
Special Requirements:	Off grid power supplies for duration of event.
Assumptions:	<ul style="list-style-type: none"> • Operational staff is available. • SPIRIT equipment remains operational before, during and after the event. • There is some type of power available at the temporary location such as generator, battery power, etc., for the duration of the emergency. • Each ACM device has a skeletal database of the state central server and is up-to-date as of the time of the disruption. • All SPIRIT clinic functionality is available through ACM device.

Notes and Issues:	In all of these uses, some likelihood that a dial-up connection could be established to transmit banking (issuance and voids) information.
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13.9 Use Case Narrative: Low Bandwidth-High Demand Internet Connection

Use Case ID:	13.9		
Use Case Name:	Low Bandwidth-High Demand Internet Connection		
Created By:		Last Updated By:	B. Hancock
Date Created:		Date Last Updated:	3/10/2011

Actors:	<ul style="list-style-type: none"> • Typical Non-technical Clinic Staff who work in WIC clinics • WIC Participants – Receive Federal benefits in the form of a check or Electronic Benefits Transfer Card to purchase WIC food, baby formula, and prescriptions.
Description:	<p>Heavy daytime usage of broadband internet requires clinics to operate in alternate mode during peak demand hours</p> <p>Low bandwidth and high demand internet results in a connection that impacts the performance of the SPIRIT application. The clinic team knows the times of heavy internet usage from experience. This may be mid-afternoon when the schools let out or people are returning home from work. The team will prepare as if the clinic were to go mobile.</p>
Pre-conditions:	<p>ACM device setup has been completed. The clinic is functioning normally with connectivity between the ACM device and the state's central Server.</p> <p>The ACM device is located in a Local Agency that has direct connection with the state's Central SPIRIT Server. The ACM device is connected to the state's Central SPIRIT Server and is operating in the normal mode. There is frequent automated synchronization of data between the ACM device and the state's Central SPIRIT Server. There may be from 3 to 12 staff working in SPIRIT at each clinic.</p>
Post-conditions:	Upon return of connection with the state's Central SPIRIT Server and the Local Agencies, automated synchronization of data between the ACM device and the state's Central SPIRIT Server resumes in normal mode.
Normal Course:	<ol style="list-style-type: none"> 1. Prior to disconnecting the ACM device from the server the WIC staff performs on-demand synchronization for the clinic. 2. The state's Central SPIRIT Server does not lock the clinic records. 3. The WIC staff disconnects the ACM device from the state's Central SPIRIT Server. 4. The ACM device is promoted to the server role. 5. Other workstations in the clinic recognize and connect to the ACM device in the server role.

	<ol style="list-style-type: none"> 6. The WIC staff continues to see participants, performing certifications, scanning documents, issuing benefits in the form of paper checks or issuing/reloading EBT benefits as well as adding to clinical data until evening when the local usage is lower. 7. The ACM tracks all data entered into the system since the time that connection with the state's Central SPIRIT Server terminated. 8. When connection between the ACM device and the state's Central SPIRIT Server has been restored, the ACM device notifies the users that the connection with the state Central SPIRIT Server has been restored and the system resumes normal operations. 9. An Activity Report is generated. 10. The clinic staff starts "on-demand" synchronization with the state's Central SPIRIT Server. 11. Data synchronization completes. 12. The ACM verifies synchronization was completed successfully and data integrity was maintained 13. ACM verifies there were no duplicate check numbers if clinic is using checks as food instrument 14. ACM notifies users that synchronization completed successfully 15. The ACM generates an Activity Report that shows all the changed records uploaded to the Central SPIRIT Server. 16. The team may compare the Activity Reports to verify all changed records were synchronized with the Central SPIRIT Server
Alternative Courses:	None
Exceptions:	<ul style="list-style-type: none"> • ACM device cannot be promoted • ACM device cannot be synchronized with the state's Central SPIRIT Server
Includes:	<ul style="list-style-type: none"> • Skeletal database • Valid approach to ensure data integrity if there was a problem with synchronization
Priority:	Medium
Frequency of Use:	Daily
Business Rules	State policy must be reinforced by the ACM process
Special Requirements:	
Assumptions:	<ul style="list-style-type: none"> • The WIC team knows in advance that the usage will peak. • All SPIRIT functionality is available through ACM device.
Notes and Issues:	In all of these uses, some likelihood that a dial-up connection could be established to transmit banking (issuance and voids) information.

13.10 Use Case Narrative: Travel to Remote Clinics in Alaska

Use Case ID:	13.10
Use Case Name:	Serving remote clinic(s) in Alaska

Created By:		Last Updated By:	B. Hancock
Date Created:		Date Last Updated:	3/10/2011

Actors:	<ul style="list-style-type: none"> • Typical Non-technical Clinic Staff who work in WIC clinics • WIC Participants – Receive Federal benefits in the form of a check or Electronic Benefits Transfer Card to purchase WIC food, baby formula, and prescriptions. • ACM device
Description:	<p>Travel to typically remote WIC clinics in Alaska.</p> <p>A five person team is schedule to go to a clinic in the far western part of the state. Prior to disconnecting the ACM device from the server, users perform on-demand synchronization for the clinics that they are travelling to. The state's Central SPIRIT Server does not lock the records. Once the ACM device indicates that on-demand synchronization is complete, the team disconnects the ACM device from the state's Central SPIRIT Server. The team packs the ACM device, four laptop workstations, four scanners, four signature pads and a printer and loads the equipment for travel. The objective is to travel to the clinics and set up a LAN so that multiple WIC participants can be serviced at the same time.</p>
Pre-conditions:	<p>ACM device setup has been completed. The clinic is functioning normally with connectivity to the state's Central SPIRIT Server. The ACM device is located in a Local Agency that has direct connection with the state's Central SPIRIT Server. The ACM device is connected to the state's Central SPIRIT Server and is operating in the normal mode filling the workstation role. There is frequent automated synchronization of data between the ACM and the state's Central SPIRIT Server. There may be from 3 to 12 staff working in SPIRIT at each clinic.</p>
Post-conditions:	<p>Upon return of connection with the state's Central SPIRIT Server automated synchronization of data between the ACM and the state's Central SPIRIT Server resumes in normal mode.</p>
Normal Course:	<ol style="list-style-type: none"> 1. The team and equipment arrive at the clinic, unpack the equipment and set up a WIC clinic. 2. Four laptop workstations are connected to the ACM device via a simple Local Area Network (LAN). The scanners, signature pads and printer are connected to the workstations. A LAN is established and the ACM device fills the server role. 3. The team works with four WIC participants concurrently using the four workstations. 4. The team transfers a participant from another Local Agency and is able to print benefits. 5. They also transfer another participant from yet another Local Agency from the eastern edge of the state and certify that user for benefits; they scan and store qualifying documents, capture signatures on the pin-pad and print schedules and checks (if not EBT cards). 6. The team services WIC participants until 3 PM.

	<ol style="list-style-type: none"> 7. The equipment is repacked for travel back to the Local Agency. 8. Due to a weather event, the team will not be able to safely return back to the local agency for 14 days. 9. The team continues to provide WIC participants benefits in the local area until they are able to return to the local agency. 10. Once they return to the Local Agency, the ACM device is reconnected to the network and communications with the state's Central SPIRIT Server is restored. 11. An Activity Report is generated. 12. Data synchronization completes. 13. The ACM verifies synchronization was completed successfully and data integrity was maintained 14. ACM verifies there were no duplicate check numbers if the clinic is using checks as the food instrument 15. ACM notifies user that synchronization completed successfully 16. The ACM generates an Activity Report that shows all the changed records uploaded to the Central SPIRIT Server. 17. The team may compare the Activity Reports to verify all changed records were synchronized with the Central SPIRIT Server 18. ACM device notifies the users that the connection with the state's Central SPIRIT Server has been restored
Alternative Courses:	<p>Alternative One:</p> <ul style="list-style-type: none"> • If the state policy mandated synchronization prior to 14 days, the state will need to override the synchronization period to allow synchronization after 14 days.
Exceptions:	<ul style="list-style-type: none"> • The ACM device will not synchronize
Includes:	<ul style="list-style-type: none"> • Skeletal database • Valid approach to ensure data integrity if there was a problem with synchronization
Priority:	High
Frequency of Use:	Often
Business Rules	State policy must be reinforced by the ACM process
Special Requirements:	<ul style="list-style-type: none"> • Ability to synchronize data after prolonged periods of non-connectivity, possibly after State mandated period for synchronization. • Equipment weight and size is such that it could be loaded aboard a light aircraft.
Assumptions:	<p>All SPIRIT functionality is available through ACM device.</p> <p>There is a method that allows an override of state mandated period of synchronization.</p>
Notes and Issues:	<p>In all of these uses, some likelihood that a dial-up connection could be established to transmit banking (issuance and voids) information.</p>

13.11 Use Case Narrative: Rural Sites

Use Case ID:	13.11
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Use Case Name:	Rural Sites		
Created By:	Judy Powell	Last Updated By:	B. Hancock
Date Created:		Date Last Updated:	3/10/2011

Actors:	<ul style="list-style-type: none"> • Typical Non-technical Clinic Staff who work in WIC clinics • WIC Participants – Receive Federal benefits in the form of a check or Electronic Benefits Transfer Card to purchase WIC food, baby formula, and prescriptions. • ACM device
Description:	<p>Rural WIC clinics in remote locations</p> <p>A three person team is schedule to go to a clinic in the far western part of the state. Prior to disconnecting the ACM device from the server, they implement “on-demand” synchronization of data for the clinic that they are travelling to (Clinic Y). The state’s Central SPIRIT Server does not lock the records. The team disconnects the ACM device from the state’s Central SPIRIT Server. The team packs the ACM device, two laptop workstations, two scanners, two signature pads and a printer and loads the equipment for travel. The objective is to travel to the Clinic Y and set up a LAN so that multiple WIC participants can be serviced at the same time.</p>
Pre-conditions:	<p>ACM device setup has been completed. The clinic is functioning normally with connectivity to the state’s SPIRIT central Server. The ACM device is located in a Local Agency that has direct connection with the state’s Central SPIRIT Server. The ACM device is connected to the state’s Central SPIRIT Server and is operating in the normal mode filling the workstation role. There is frequent automated synchronization of data between the ACM and the state’s Central SPIRIT Server. There may be from 3 to 12 staff working in SPIRIT at each clinic.</p>
Post-conditions:	<p>Upon return of connection with the state’s Central SPIRIT Server at the Local Agency, automated synchronization of data between the ACM and the state’s Central SPIRIT Server resumes in normal mode.</p>
Normal Course:	<ol style="list-style-type: none"> 1. The team and equipment arrive at the Clinic Y, unpack the equipment and set up a WIC clinic. 2. The clinic is in an unsafe area and the team has to keep close watch on the equipment. 3. The clinic is also without electrical power. The team sets up a small, portable generator and lays out extension cords and power strips to provide power to the equipment. 4. Two laptop workstations are connected to the ACM device via a simple Local Area Network (LAN). The scanners, signature pads and printer are connected to the workstations. 5. A LAN is established and the ACM fills the server role. 6. The team works with two WIC participants concurrently using the two workstations.

	<ol style="list-style-type: none"> 7. The team transfers a participant from another Local Agency and is able to print the participant's benefits. They also transfer another participant from a second Local Agency near the eastern edge of the state and certify that user for benefits; they scan and store qualifying documents, capture signatures on the signature pad and print schedules and checks (if not EBT cards). 8. The team services WIC participants until 3 PM. 9. The equipment is repacked for travel back to the originating Local Agency. 10. The team arrives back at the local agency. 11. An Activity Report is generated. 12. The ACM device is reconnected to the network and communications with the state's Central SPIRIT Server is restored. 13. Data synchronization completes. 14. The ACM verifies synchronization was completed successfully and data integrity was maintained 15. ACM verifies there were no duplicate check numbers if the clinic is using checks as the food instrument 16. ACM notifies user that synchronization completed successfully 17. The ACM generates an Activity Report that shows all the changed records uploaded to the Central SPIRIT Server. 18. The team may compare the Activity Reports to verify all changed records were synchronized with the Central SPIRIT Server 19. ACM device notifies the users that the connection with the state's Central SPIRIT Server has been restored.
Alternative Courses:	<p><u>Alternative One:</u></p> <ol style="list-style-type: none"> 8. The team then breaks for lunch. Upon return from lunch they discover that one of the laptops has been stolen. They report the theft as per the state protocol and continue the clinic with the ACM device now operating in dual mode as the local database server and a workstation. Since the stolen laptop operated in the workstation role and was synced to the ACM device, there is no data loss. The team services WIC participants until 3 PM. <p><u>Alternative Two:</u></p> <ol style="list-style-type: none"> 10. Flooding roads make it impossible to travel back to the local agency. The team overnights locally at a facility that does not provide internet service. The next morning travel is still impossible so the team decides to continue to host the alternate clinic until travel can be resumed. They see participants for the day and are able to return to the originating local agency after dark. <p><u>Alternative Three:</u></p> <ol style="list-style-type: none"> 10. Flooding roads make it impossible to travel back to the local agency. The team locates a local establishment that provides free wireless internet connectivity. After securing permission to use the wireless the team establishes a wireless connection from the ACM device to the establishment's wireless internet connection. The ACM generates an Activity Report. Once the internet connection is established the ACM is reconnected to the secure VPN network and communications with the state's Central

	<p>SPIRIT Server is restored. ACM device notifies the users that the connection with the state's Central SPIRIT Server has been restored and synchronization begins. The ACM verifies synchronization was successful and notifies the user. The ACM generates an Activity Report of all changed records uploaded to the Central SPIRIT Server. The team can now either return to the local agency as travel becomes possible, or continue to host alternate clinics in the area and not violate the state policy concerning time out of synchronization.</p>
Exceptions:	<ul style="list-style-type: none"> • The ACM will not synchronize with the state's Central SPIRIT Server • Cannot validate all data was uploaded at synchronization • The ACM device that was in the server role was stolen • Electrical power was not available
Includes:	<ul style="list-style-type: none"> • Portable generator or battery packs or other means of producing adequate power. • Ability to connect the ACM device to ad hoc wireless networks.
Priority:	High
Frequency of Use:	Often
Business Rules	State policy must be reinforced by the ACM process; State requires data to be synchronized at the end of the day
Special Requirements:	<ul style="list-style-type: none"> • May need smaller, less expensive equipment • There is a method that allows an override of state mandated period of synchronization. • Wireless card for ACM device. • Secure VPN to state agency network.
Assumptions:	<p>Power is available to staff from some form (Line power, generator, battery packs, etc.).</p> <p>All SPIRIT functionality is available through ACM device.</p> <p>State will allow an override if the ACM device is disconnected beyond the state mandated time frame.</p>
Notes and Issues:	In all of these uses, some likelihood that a dial-up connection could be established to transmit banking (issuance and voids) information.

13.12 Use Case Narrative: A Mobile Clinic

Use Case ID:	13.12		
Use Case Name:	Local Agency or clinic could conduct all SPIRIT operations from a "mobile clinic"		
Created By:		Last Updated By:	B Hancock
Date Created:		Date Last Updated:	3/10/2011
Actors:	<ul style="list-style-type: none"> • Typical Non-technical Clinic Staff who work in WIC clinics • WIC Participants – Receive Federal benefits in the form of a check or Electronic Benefits Transfer Card to purchase WIC food, baby formula, and prescriptions. 		

	<ul style="list-style-type: none"> • ACM device
Description:	<p>A Local Agency (LA) or clinic could conduct all SPIRIT operations from a "mobile clinic". The mobile clinic may operate within the region normally serviced by one of the Local Agencies. The mobile clinic could choose which clinic's records to include. The mobile clinic may or may not have a persistent connection with the state's central server (e.g., wireless broadband internet if available). If not, the record changes would be transferred to the State database upon reconnection with the state's central server.</p> <p>A vehicle is outfitted to carry three workstations and ACM device, as well as three signature capture pads, three MSR (magnetic stripe reader) reader/writers, three document scanners and a printer. The vehicle also carries an on-board, secured, wireless LAN. When in proximity to the Local Agency it will have full connectivity to the state central server and act as part of the Local Agency WIC clinic.</p>
Pre-conditions:	<p>ACM device setup has been completed. The clinic is functioning normally with connectivity between the ACM and the state's central Server.</p> <p>The ACM device is located in a Local Agency that has direct connection with the state's Central SPIRIT Server. The ACM is connected to the state's Central SPIRIT Server and is operating in the normal mode. There is frequent automated synchronization of data between the ACM and the state's Central SPIRIT Server. There may be from 3 to 12 staff working in SPIRIT at each clinic.</p>
Post-conditions:	<p>Upon return of connection with the central server and the Local Agencies automated synchronization of data between the ACM and the state's Central SPIRIT Server resumes in normal mode.</p>
Normal Course:	<ol style="list-style-type: none"> 1. Prior to going mobile, the team performs on-demand synchronization. 2. Once the ACM indicates that synchronization is complete, the team disconnects from the state central server, secures the equipment and proceeds to where they will setup the clinic (i.e., a health fair, a rural location with no permanent WIC clinic, etc.). 3. Once on location the equipment and LAN are powered up, the scanners, printers and other laptops are checked for connectivity to the local server and for proper operation. 4. The team begins to see WIC participants. They perform certifications, scan documents, issue benefits in the form of paper checks or issue/reload EBT benefits as well as adding to clinical data until the end of the event. 5. The equipment is powered off and secured. 6. The team returns to the local agency and in range of the local agency wireless LAN. 7. ACM generates an Activity Report. 8. The ACM device is reconnected to the network and

	<p>communications with the state's Central SPIRIT Server are restored.</p> <p>9. ACM device notifies the users that the connection with the state's Central SPIRIT Server has been restored and synchronization begins. The ACM verifies synchronization was successful and data integrity was maintained. The ACM notifies users that synchronization was successful</p> <p>10. The ACM generates an Activity Report that shows all the changed records uploaded to the Central SPIRIT Server.</p> <p>11. The team may compare the Activity Reports to verify all changed records were synchronized with the Central SPIRIT Server</p>
Alternative Courses:	<p><u>Alternative One:</u></p> <p>A vehicle is outfitted to carry three workstations and ACM device, as well as three signature capture pads, three MSR (magnetic stripe reader) reader/writers, three document scanners and a printer. The vehicle also carries an on-board, secured, wireless LAN. When in proximity to the Local Agency it will have full connectivity to the state central server and act as part of the Local Agency WIC clinic. Prior to going mobile the team performs on-demand synchronization. Once the ACM indicates that synchronization is complete, the team disconnects from the state central server, secures the equipment and proceeds to where they will setup the clinic (i.e., a health fair, a rural location with no permanent WIC clinic, etc.).</p> <p>Once on location the equipment and LAN are powered up, the scanners, printers and other laptops are checked for connectivity to the local server and for proper operation. The team begins to see participants. They perform certifications; scan documents, issue benefits in the form of paper checks or issue/reload EBT benefits as well as adding to clinical data until the end of the event. The equipment is powered off and secured.</p> <p>The team proceeds to a second stop that is in range of a wireless access point (Hotspot). Such hotspots exist around some hotels, libraries and restaurants (i.e., Starbucks). After securing permission from the local authority (manager, owner, etc.) the team makes connection via secure VPN through the hotspot to the state central server and synchronizes the databases.</p> <p>ACM generates an Activity Report. The ACM notifies the users that the connection with the state's Central SPIRIT Server has been restored and synchronization begins. The ACM verifies synchronization was successful and notifies users. ACM generates an Activity Report that shows all the data uploaded to the Central SPIRIT Server.</p>
Exceptions:	<ul style="list-style-type: none"> Wireless connection is not stable and synchronization does not occur
Includes:	<ul style="list-style-type: none"> Skeletal database Valid approach to ensure data integrity if there was a

	problem with synchronization
Priority:	
Frequency of Use:	
Business Rules	State policy must be reinforced by the ACM process
Special Requirements:	Ability to access the state central server through a secured VPN.
Assumptions:	All SPIRIT functionality is available through ACM device A vehicle that has the ability to carry the WIC clinic equipment.
Notes and Issues:	
Use Case Diagram:	

14. Business Requirements Mapped to Use Cases

ID Number	Function Feature Requirement	Use Case Reference	Required	Comments
12.2	Documentation			
12.3	Set-up	13.1 - 13.2		
12.4	Normal Mode	13.1 - 13.12	Y	
12.5	Alternate Mode	13.1 - 13.12	Y	
12.5.1	Setup Transition	13.2 - 13.12	Y	
12.5.2	Data Protection	13.1 - 13.12		
12.5.3	Alternative Functionality	13.1 - 13.12	Y	
12.5.4	Reporting	13.1 - 13.12	Y	
12.5.5	Synchronization	13.1 - 13.12	Y	
12.5.6	Topology	13.1 - 13.12		
12.5.7	Data Synchronization and Check-In Process Requirements	13.1 - 13.12	Y	

15. APPENDICES

15.1 Hardware Equipment Specifications

SPIRIT is hardware agnostic; as long as the computer will run the Windows operating systems and has sufficient hard drive space and RAM (listed below) it will be able to run SPIRIT.

Central Database Server (Online):

MS SQL Server 2008 Enterprise Edition Service Pack 1
4 GB RAM (minimum requirement)

Data Sync Laptop Servers (Offline):

MS SQL Server 2008 Workgroups Edition
4 GB RAM (minimum requirement)

Web Servers:

Windows Server 2008
4 GB RAM (minimum requirement)

Client Workstations:

Windows XP Service Pack 3
4 GB RAM (minimum requirement)

15.2 SPIRIT Business Rules

See the Detailed Functional Design Document (DFDD) located at:

<https://www.sugconnect.com/shared documents/DFDD/DFDD Releases>

Choose the latest release.